

DEBRIEFING REPORT

**THE EMERGENCY RESPONSE
TO THE
NORTHERN PACIFIC SEASTAR
OUTBREAK AT INVERLOCH
2004/2005**



Table of Contents

1. Background.....	3
2. Debrief Process	3
3. Summary	4
4. Debriefing sessions	6
4.1 <i>Volunteer & Community Debrief</i>	6
Table 1: Issues discussed at the Volunteer and Community Debrief.	7
Table 2: Volunteer and Community Debrief Attendees	15
4.2 <i>Government Debrief</i>	16
Table 3: Issues discussed at the Government Debrief.	17
Table 4: Government Attendees	20
4.2 <i>Other Debriefings</i>	21
Table 5: Issues discussed at Other Debrief sessions.....	22
5. Chronology of Events	24
6. Survey and eradication area.....	28

*Prepared in 2005 by Ingrid Holliday
Marine Biodiversity and Natural Resources
Victorian Department of Sustainability and Environment*

e-mail: Ingrid.Holliday@dse.vic.gov.au

1. BACKGROUND

In late 2003 the first Northern Pacific Seastar was found in rock exposed at low tide just outside the entrance to Anderson Inlet at Inverloch. After search efforts in the region, a population was found just inside the Inlet entrance in March 2004. This population was the focus of eradication efforts managed by DSE through 2004 and involved Victorian government agencies, a large range of volunteer organisations and many individuals who also volunteered their time.

2. DEBRIEF PROCESS

Debrief sessions were held to provide an opportunity for all individuals involved in the response to discuss issues and provide suggestions on future response arrangements. Debriefing sessions were held with the Volunteers & Community, Government employees and other parties that had involvement in the response.

In each case, discussions were documented by DSE for the comment and confirmation of attendees to prepare a final report.

The debrief sessions had the following overall objectives:

- confirm the chronology of events associated with the response to the Northern Pacific Seastar at Inverloch;
- identify aspects of the response that went well or that should have been managed differently; and
- determine how these items should be addressed in future responses and in updating marine pest response arrangements.

3. SUMMARY

Comments raised during the debriefing process are included in the summaries of each debriefing session. The following discussion provides a summary of the broad range of comments and highlights the implications for future management of responses to introduced marine pest outbreaks.

1. Logistical management of events and associated liabilities

The debriefing discussions considered the logistical management of daily activities during events including the management of risk, safety and practicalities of effectively carrying out search or eradication techniques. A range of issues require ongoing attention and were considered during follow up dives and where appropriate, implemented. An independent audit of safety procedures was also conducted to review arrangements.

The management of risk during events was an important focus of the debriefing process. Particular implications for future responses include the need to prepare a professionally validated risk assessment, prepare a response plan to suit the characteristics of an outbreak and continue to update the documentation as appropriate.

There are elements of insurance coverage, liabilities and responsibilities for this event that still require further confirmation.

2. A partnership approach to emergency management

The maintenance of volunteer involvement, motivation, enthusiasm and enjoyment of events was essential over the duration of the response. Issues considered relevant to future responses included:

While the response to Inverloch was managed under a structure with formal responsibilities, the feasibility of a range of eradication techniques resulted in only one option – hand collection by divers. This led to the engagement of a large number of volunteers. The maintenance of volunteer involvement, motivation, enthusiasm and enjoyment of events was essential over the duration of the response. The following points provide a brief summary of important considerations for engaging volunteers in similar formal structures:

- Community ownership of the response – this provided a sense of responsibility arising from their direct involvement in decision-making at all levels and due to open communication and provision of information as it came to hand. (This needs to be balanced against DSE's administrative responsibilities, especially in relation to the safety, media and national obligations.)
- Taking personal responsibility – this was necessary to ensure, that while the dives were done with the confines of a dive safety plan and the overall directions of qualified dive masters, that participants could participate according to their skill and comfort and enjoy the experience and return to dive again, rather than see it as chore. (This needs to be balanced against the need to set and enforce minimum dive competencies, and if required give explicit direction)
- Continuity of Departmental contacts – this provided a sense that Government saw the response as important and a priority.

3. Emergency management structure for exotic marine pest emergencies

Consideration was given to the management structure relating to managing introduced marine pest incursions and action for improving the structure. The following points provide a brief summary of important considerations for future arrangements.

- The management of introduced marine organism incursions should be formally incorporated into the statewide emergency management framework. The Office of the Emergency Services Commissioner assisted with the debriefing process and will continue to be involved in formalising arrangements.
- The Victorian Protocol for Managing Exotic Marine Organism Incursions should be updated in 2005, to ensure consistency with national emergency management arrangements that are soon to be formally agreed through the marine pest IGA. During the update the consideration of the possibility of a tiered approach to emergency pest management is necessary, so that in the event that government agencies may need to deal with other emergencies, a prioritisation framework is followed.
- National specialist resources available for introduced marine pest emergency responses should be identified and documented in a 'national' inventory for future reference.

4. Communications during the response

The early stages of the outbreak involved intensive collection of information to characterise the nature of the response. As information came to hand, it was continuously disclosed to the public and to organisations involved in the response. The prompt provision of information in a useable format to the public and to organisations involved in the response was valued by participants and increased the trust between parties involved in the incident. It was considered that this should be a feature of future responses.

5. Internal agency arrangements for managing marine pest incidents

A number of issues relating to management arrangements internally to Government were considered during the debriefing process. The following points provide a brief summary of important issues to note.

- Quality advice was considered integral to the management of this incident, and that advice to the public, media and other organisations must be duly authorised. This point will be canvassed during the consultation undertaken during the revision of the Victorian Protocol.
- Comments during debriefings also highlighted the importance of being able to centrally collate all sighting reports (including false alarms) to enable cross referencing of reports on a statewide or national basis. This issue will also be addressed during the consultation to be undertaken in revising the Victorian protocol.

6. National treatment standards for marine infrastructure projects

Preventative measures may relate to the hazard posed by marine pests generally and/or the risk posed by specific species. As infrastructure projects may require multi-jurisdictional consents it was recommended that consents be based on the most robust approach to marine pest management and that national approaches to standard setting be adopted. This was considered particularly relevant to offshore industries that may have vessels stationed on stand-by and may be required to operate across multiple jurisdictions in response to incidents.

4. DEBRIEFING SESSIONS

4.1 Volunteer & Community Debrief

Facilitator: Max Coulter (DSE - Emergency Management.)

A debrief session was held at the Inverloch Community Centre at Inverloch, Victoria on Friday 3rd December 2004 to review the emergency response to the Northern Pacific seastar (*Asterias amurensis*) outbreak in Anderson Inlet.

All individuals involved in the response were given the opportunity to either attend the debrief session or send in any comments to be discussed by those attending on the day.

A structured approach was used as a guide to identify and discuss issues related to the response that required consideration and included issues relating to:

- What worked well;
- What did not work well; and
- Other suggestions/ issues.

Table 1 provides an outline of Issues discussed at the Volunteer and Community Debrief.

Table 1: Issues discussed at the Volunteer and Community Debrief.

Issue	Comments	Comments	Inverloch incident	Other incidents
What worked well				
Overall	<ol style="list-style-type: none"> 1. Timeliness of setting up the response was quick and efficient. 2. The command-control structure was effective. 3. The program was well coordinated 4. Choice of days and meeting time provided time to attend for those travelling from elsewhere. 			✓
Dive events	<ol style="list-style-type: none"> 5. The daily briefings worked well at providing a sense of purpose and providing closure on each dive event. Pre-dive briefs were important for bringing everyone together, providing focus on the task and providing details for each days plan and expectations. Post-dive briefs were effective at providing a summary of the day and the plan for the next dive event. 6. Visual information displays including maps and dive plans worked well for briefings and also for raising community awareness of the events during the dives. 	<p>Ensure dive briefings are provided pre and post dives</p> <p>Ensure that visual information is organised and available at appropriate sites.</p>	✓	✓
Dive planning	<ol style="list-style-type: none"> 7. Separation of diving sites was effective. 	Prepare risk assessment and dive plan appropriate for each response		✓

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

Media	<p>8. Media strategy was effective in spreading informing and educating the public on the issue</p> <p>9. The publicity associated with awards was effective in getting the message out.</p> <p>10. Involving media (radio, TV, print) including inviting reporters to the site was effective</p> <p>11. Media releases were important</p> <p>12. The good news story facilitated positive media coverage</p>	Prepare media strategy for responses and continually review		✓
Recruiting volunteers	13. Media strategy was effective in recruiting divers and providing information on activities	Prepare recruitment strategy specifically to target appropriate volunteers	✓	✓
Communication on email	14. Email communication was effective at providing regular feedback/ updates and maintaining contact and could be printed for later reference. Those that were not on email were kept in the loop through local networks.	Establish effective communication media with volunteers (such as email/ website)		✓
Teamwork/ partnership	<p>15. A very positive idea to get the community working with Government Departments. It worked well in this case. Such teamwork can make a positive contribution towards constructive relationships between the Government and the community.</p> <p>16. Discussions with Departmental staff provided a better understanding on the response and the Departments role in marine pest management.</p>	Involve stakeholders in decision making for response and make these decisions and their reasoning readily available.	✓	✓
Incentives/ expectations on community	17. Items such as free lunches, scuba air vouchers, boat fuel, boat launching parking were adequate incentives. However these incentives were not the reason many became involved – rather it was the intangible benefits of being involved in a group and in taking action on an environmental issue that was attractive. The sense of ownership of the program was a critical factor that saw many volunteers return on multiple occasions. All volunteers including non-divers were welcomed to the BBQ's	Incentives to be agreed to early in the response arrangements.		✓

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

Recognition	18. Recognition of those involved was timely and well considered (eg certificate from the Minister and the T-shirts)	Ensure that recognition is provided to volunteers		✓
Community information	19. The post event seminar on the local marine environment was appreciated – volunteers found it informative and interesting. 20. Visual information displays including maps and dive plans worked well for briefings and also for raising community awareness of the events during the dives.	Consider options for raising awareness and disseminating information to community on the local marine environment Ensure that visual information for awareness raising is organised and available at appropriate sites during the events.	✓	✓
Safety	21. The dive planning was not too regimented – it was flexible enough to allow for divers to take personal responsibility of their own safety as per dive training. 22. Experienced divers were well utilised – both in the field and for briefings. Despite the 30+ dive requirement, experienced divers were buddied up with lesser experienced divers. This built their experience and confidence and increased numbers of effective searchers for future dives. However, focus should be eradication capacity first and then on involving/ accommodating less experienced volunteers. 23. The use of boats to collect divers that had drifted from the area worked effectively and gave divers confidence that they would not drift out of view.	Consider appropriate flexibility for control for each response to allow individuals to take personal responsibility of actions. Ensure that appropriate risk minimisation strategies are implemented Ensure diver safety is considered within risk assessment.	✓	✓
What did not work well				
Overall	24. Later start times would have been better for those travelling long distances.	Consider appropriate start times that are suitable for volunteers	✓	✓

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

Dive events	<p>25. Management of information collected through forms could have been streamlined</p> <p>26. The shore presence was vital for providing a focal point, liaison, safety and communication role, however was not consistently present. This was also important for ensuring safety of gear left by divers (keys etc.)</p>	<p>Consider necessity for information (ie for filling out forms) and efficient options for obtaining it.</p> <p>Ensure central focus point near dives and consider the need for relocating this point.</p>		✓
Dive Planning	<p>27. The currents meant that search effectiveness may have been reduced. Alternative search methods may have been more effective including placing multiple divers on a rope and diving on the slack tide. It was also difficult to return to suspected areas.</p> <p>28. Some volunteers were not aware of the reasoning behind search tactics.</p>	<p>Consider all search techniques and options for physically marking the search area</p> <p>Involve stakeholders in decision making for response and make available the reasoning behind search strategy.</p>	✓	✓
Media	<p>29. Regular updates and advertisements in local newspapers could have effectively distributed information on events.</p>	<p>Prepare media strategy for responses and continually review</p>		✓
Recruiting volunteers	<p>30. More volunteers could have been attracted with wider advertising. (eg Sun & The Age newspapers).</p>	<p>Consider options for targeting volunteers</p>	✓	✓
Communication on email	<p>31. The email network should remain confidential – all individuals should be bcc'd.</p>	<p>Ensure all correspondence is confidential</p>	✓	✓

<p>Safety</p>	<p>40. Vessel access to the boat ramp at critical times of the dive events was delayed at times due to other users - better management for volunteer vessel access is required.</p> <p>41. On some occasions, individual divers surfaced without a dive buoy meaning that boat drivers may not have been aware of their location. At times this was due to too many divers using a single buoy and also because of ropes that were too long.</p> <p>42. Vessel movement over diving locations posed a risk to divers.</p> <p>43. The low experience levels of divers (suitable to dive conditions) and boat drivers (suitable to transporting and collecting divers) posed a risk to volunteers and should be considered.</p> <p>44. Individual volunteers should all be accounted for at the end of each day. On occasions individuals left without notifying organisers.</p>	<p>Consider need for sole access of boat ramps for response craft arrangements during critical times. Consider role of Victorian Police or volunteer coast guard for safety management roles during incidents.</p> <p>Consider appropriate lengths of rope and ensure adequate supply of dive buoys and flags.</p> <p>Undertake a risk assessment and rationalise the use and number of vessels involved to minimise risks.</p> <p>Assess experience levels of both divers and boat drivers and continually review to suit conditions.</p> <p>Ensure all individuals are accounted for at the end of each event by signing off. And that all contact details are available.</p>	<p>✓</p>	<p>✓</p>
---------------	--	---	----------	----------

	<p>45. Safety planning and performance was planned however not all volunteers were aware of these arrangements</p> <p>46. The dive plan was not updated when arrangements changed based on a review of risks and logistical practicalities.</p>	<p>Safety sections of operational plan to be made clearer at briefings. Emergency procedures to be simply documented for dive leaders, boat operators (emergency summary/ checklist for incidents focusing on instructions/ contact details)</p> <p>If plan is changed this should be immediately documented by updating plan.</p>		
Other suggestions/ issues				
Awareness raising	<p>47. To ensure that the community is able to identify the species, ensure that a specimen (preferably with retouched colours) is displayed prominently at Inverloch (such as the Bunurong Environment Centre). The laminated pictures are not adequate for identification.</p>	<p>Consider alternative option for community awareness raising including having accurate samples on display</p>	✓	✓
Eradicating next population	<p>48. Suggest that an eradication attempt is made for the seastars at Mornington in Port Phillip Bay</p>	<p>Eradication efforts should not be redirected to Port Phillip Bay - eradication of this population is not feasible with current eradication methods.</p>		✓
Community involvement	<p>49. This program provided great opportunities for building community capacity and provided an opportunity for involvement. The community could have assisted by being more involved in the program (eg. Primary School, ground based search effort).</p>	<p>A strategy should be developed for providing opportunities for involving the community where appropriate.</p>	✓	✓

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

Future response	<p>50. The strategy/ decision on responses could have been explained more clearly and should be available for (eg. if juveniles are found in February).</p> <p>51. The feasibility and appropriateness of incorporating additional/ alternative resourcing (eg. commercial divers) for responses to expedite pest detection and removal should be further explored.</p>	Communicate/ make available decision making process to all involved.	✓	✓
Additional comments	<p>52. Despite State Emergency Structure, the Red Cross rather responded as a community group and used the exercise as a training platform.</p> <p>53. The State Emergency Management structure should apply to such a response including involvement from other responsible agencies such as the Victorian Police to ensure adequate coordination. The community involvement should also be recognised in the structure.</p> <p>54. The utility of specialist resources being made available by other CCIMPE members (UW video from Tasmania in this instance, plus potentially some gene probe stuff from CSIRO), suggests that a mechanism might be needed to facilitate this in the future. A national inventory (and possibly loan scheme or letters of understanding) for equipment, trained staff to operate them where necessary, specialist skills (eg. statistical survey designs, genetics) would be one option. Something like a distributed version of the oil spill response tools.</p>	<p>Review marine pest emergencies in relation to the State Emergency Structure</p> <p>Develop a ‘national’ inventory of specialist resources available for responses to future incidents.</p>		✓

All volunteers were congratulated on their efforts. Those assisting with facilities such as the Bunurong Environment Centre and Anderson Inlet Angling Club were thanked and the Red-Cross volunteers were particularly thanked for a great job.

Table 2: Volunteer and Community Debrief Attendees

Name	Agency/ Group
Rob Timmers	Seal Diving Services
Peter Newgreen	Diver - Latrobe Valley
Andy Ringing	Diver - Latrobe Valley
Lex Thorbecke	LT Divers
Charlie Deering	Diver - Inverloch
June Laycock	Diver – Inverloch, President, Inverloch Angling Club
Donald Tipping	Diver - Inverloch
Dave Sutton	President, Inverloch Residents & Rate Payers Association
John Gunson	Bunurong Environment Centre
Marilyn Mackie	Red Cross
John Mackie	Red Cross
Brett Green	State Emergency Services
Sandy Brown	Parks Victoria
Brian Martin	Parks Victoria
Richard Boekel	Department of Sustainability and Environment
Ingrid Holliday	Department of Sustainability and Environment
Don Hough	Department of Sustainability and Environment
Max Coulter	Department of Sustainability and Environment
Tony Pearce	Department of Justice
Ian Peebles	Department of Agriculture, Fisheries and Forestry

2.2 Government Debrief

Facilitator: Don Hough (DSE – Marine Biodiversity & Natural Resources)

A debrief session was held on Monday 13th December 2004, in the Victoria Room, level 16/8 Nicholson St, Victoria to review the emergency response to the Northern Pacific seastar (*Asterias amurensis*) outbreak in Anderson Inlet.

Attendees included representatives of agencies with responsibilities for marine pest emergency responses and staff involved in the Inverloch response.

A structured approach was used as a guide to identify items that went well and areas of difficulty at various stages of the emergency management process. Analysis of the incursion was separated into Pre-Event, Event and Post-Event phases. The confirmation of the Northern Pacific Seastar at Inverloch was defined as commencement of the Event phase.

The key emergency management themes that were used to assess the incursion management process were:

- Pre-event
 - detection
 - reporting and
 - confirmation
- Event
 - Command and control
 - Communication
 - Logistics
 - Resources
 - Information Management
- Post- event
- Other issues
 - Insurance

Table 3 provides an outline of issues discussed at the Government Debrief.

Table 3: Issues discussed at the Government Debrief.

Issue	Comments	Comments	Agency
Overall			
Status of Emergency	<p>55. The status of a marine pest outbreak as an emergency was discussed and the following acknowledged:</p> <ul style="list-style-type: none"> • Marine pest outbreaks are considered emergencies under the <i>Emergency Services Act 1987</i>. • A structured and transparent approach is required to making decisions to respond to outbreaks. 	Ensure marine pest emergencies are reflected in Statewide Emergency planning and resourcing.	DSE and DOJ
Updating Interim protocol	56. Interim protocol needs to be updated and take into account comments raised during debriefing	Complete review of Interim Protocol in 2005	DSE
Pre-event			
Detection	57. While early detection may be improved by skilling the community on identification of likely marine invaders, it was acknowledged that increased attention also resulted in an increase in false reports that required investigation. Experience with Inverloch suggested that reports were received of sightings of unusual species in the area rather than accurate identification of the seastar. Many introduced species are difficult to differentiate from native species even for experts.	Consider advantages of implementing marine pest awareness campaigns for marine pest management arrangements	DSE
Reporting	<p>58. Early detection system should be reviewed and if necessary updated including:</p> <ul style="list-style-type: none"> • clarifying contact procedures – correct numbers and people to call • clarifying expectations of reporters on department parties for a response as in the DPI 24 hour reporting phone line – 13 FISH (13 34 74) • considering options for using a single number across agencies and streamlining reporting arrangements with other similar issues. 	Coordinate a review of the early detection and reporting framework for marine pests during the review of the Interim protocol	DSE

Event			
Command and Control	59. A generic management structure for marine pest emergencies, cetacean strandings and oil spills is recommended. The AIIMS (Australasian Inter-service Incident Management System) structure was recommended given its use in fire management and the pre-existing arrangements for regionally based responses. However, as DPI manage the related issue of fish translocations under a different response model, the relationship between these issues and response structures should be considered.	Coordinate consideration of a generic management structure for all marine related emergencies during review of Interim protocol and during review of the Emergency Response Framework across all responsibilities of DSE.	DSE
Communication	60. Other Victorian agencies were not kept updated on a regular basis during the Inverloch response and should have received all information sent to the CCIMPE.	Ensure that relevant Victorian agencies receive all updates sent to CCIMPE.	DSE
Logistics	61. An operational structure for response as for other emergency responses (such as fire) should be formalised within control documentation. This should outline roles, responsibilities and resources available. This structure should however also consider the requirements of managing volunteers.	Coordinate consideration of the operational structure (such as used in fire management) for marine pest response during review of Interim protocol	DSE
Resources	62. Consideration should be given for availability of resources given agency priorities at the time of any future marine pest emergency (eg. bushfire). 63. The limited ability for rapid responses for some organisations was also considered. For example, PIRVIC had limited capacity for assisting in searches.	Coordinate consideration of required resources during review of Interim protocol and during review of the Emergency Response Framework across all responsibilities of DSE.	DSE
Resources - Leadership	64. It was acknowledged that a number of committed individuals provided a significant and ongoing effort in responding to the incursion. Such continuity rather than a large team of agency staff is important if a future response relying on volunteer efforts is necessary.	Coordinate consideration of appropriate resources for managing responses during review of Interim protocol	DSE

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

Post- Event			
Safety audit	65. To ensure continual improvement an independent audit should be completed on the risk management approach to address safety issues related to the response.	Coordinate an audit of risk management by February 2005.	DSE
Other IssuesPost- Event			
Insurance	66. The insurance coverage for volunteers should be clarified including DSE insurance and insurance available for formally declared emergencies under the <i>Emergency Services Act 1987</i> .	Clarify insurance arrangements for marine pest incident responses by February 2005.	DSE

Table 4: Government Attendees

Name	Agency/ Group
Anthony Boxshall	Parks Victoria
Max Coulter	DSE – Emergency Management
Tony Pearce	DOJ - Office of The Emergency Services Commissioner
Ingrid Holliday	DSE – Marine Biodiversity & Natural Resources
Don Hough	DSE – Marine Biodiversity & Natural Resources
Greg Jenkins	PIRVIC
Mark Winfield	DSE – Port Phillip Region
Richard Boekel	DSE – Port Phillip Region
James Andrews	DPI – Fisheries
Yvonne Prior	Environment Protection Authority
Helen Syer	Environment Protection Authority

2.2 Other Debriefings

Facilitator: Don Hough/ Ingrid Holliday (DSE – Marine Biodiversity & Natural Resources)

In addition to the Community and the Government focused debriefing, two debriefings were held to consider additional issues. These debriefings session were held on Friday 21st January 2005 1-2pm at level 2/8 Nicholson St, Victoria and Monday 31st January 2005 2-2:45pm at level 4/8 Nicholson St, Victoria with individuals involved in the emergency response to the Northern Pacific seastar (*Asterias amurensis*) outbreak in Anderson Inlet.

The following structure was used to guide discussion during the debrief sessions

- Issues that were handled well, or could have been handled better
- Implications of particular issue to note
- Other issues

Table 5 provides an outline of issues discussed.

Table 5: Issues discussed at Other Debrief sessions.

Issue	Comments	Comments	Agency
Issues that were handled well, or could have been handled better			
Single point of contact	1. The continuity of DSE staff contacts during the incident was considered beneficial as it provided quality and completeness of information during a period of rapid change.	Ensure appropriate management structure recognising needs of volunteers (such as a single point of contact) are considered for future responses.	DSE
Open/honest communications	2. Open and honest communications at both the communication officer and project officer level was considered a positive approach to managing the incident. The organisation was kept up to date on actions taken and felt comfortable that the issue was being managed.	Ensure continuous public disclosure of information as it comes to hand	DSE
Implications of particular issue to note			
Cost implications for organisations inadvertently drawn into response	3. It was acknowledged that considerable internal organisational costs were incurred in briefing senior officers and obtaining information from subcontractors. This involved several hundred emails.	Ensure that only officers authorised to do so comment on incidents and contact industry and other organisations.	DSE
Other issues			
Standardising preventive requirements for government authorisation	4. To ensure that correct preventative measures were in place (particularly for standby vessels), the value of a national standard for cleaning/ maintenance of vessels was identified.	Ensure measures for preventing the spread of marine pests are explicit in consent processes Propose standardized preventative measures for implementation at a national level.	DSE DSE

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

Private sector projects conducted in accordance with project specific consents.	<p>5. As the incident had occurred approximately 6 months after completion of the organisations project, information had to be retrieved to respond to the incident rapidly. This was possible only because the project officer was still present. It was considered that this could have been addresses by:</p> <ul style="list-style-type: none"> - A standard for preventative measures - Clear documentation on vessel movements. 	<p>Ensure preventative measures are explicit in consent processes and that informal project close-out arrangements are adopted.</p> <p>Propose standardised preventative measures for implementation at a national level.</p>	<p>DSE</p> <p>DSE</p>
Media management	<p>6. The importance of structured media management in relation to marine pest outbreaks was recognised.</p>	<p>Ensure that awareness is raised of DSE's media management protocols.</p>	<p>DSE</p>
Formal structure for receiving marine pest reports	<p>7. The formal structure for managing reports of marine pest sightings was acknowledged.</p>	<p>Ensure that awareness is raised of the Victorian Interim Protocol for managing Exotic Marine Organism Incursions, with particular reference to the structure for managing reports of sightings.</p>	<p>DSE</p>
Badging of emergency responses	<p>8. The Inverloch emergency response was managed by the SEASTAR TEAM 2004 –a partnership forged between Government and Community Groups. It was acknowledged that given the focus on this partnership, all badging for recognising Government involvement was deliberately maintained as an agency level (eg, DSE, PV etc.).</p>	<p>Ensure that consistent messages of Government involvement in emergency response partnerships are maintained and effectively managed.</p>	<p>DSE</p>
Logistical support	<p>9. Opportunities for logistical and organisational support to be provided by regional DSE staff were discussed.</p>	<p>Coordinate consideration of an operational structure providing for regional delivery of a response during review of Interim protocol</p>	<p>DSE</p>

5. CHRONOLOGY OF EVENTS

Bolded – Significant events to note

Italicised – Involvement of the National Consultative Committee for Introduced Marine Pest Emergencies

Item #	Date	Event
1.	October 2002	A 'detailed' survey of the seafloor of Venus Bay immediately to the west of Point Norman as part of another focused study did not record the Seastar's presence.
2.	25 November 2003	First report received of a Seastar sighting at Inverloch.
3.	5 January 2004	First Seastar specimens identified by PIRVIC.
4.	8 January 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies notified of potential outbreak.</i>
5.	10 January 2004	Beach survey of intertidal and tidal rack area from Flat Rocks and Eagles Nest at low tide – no confirmed Seastars. *
6.	11 January 2004	Limited dive survey of Inlet entrance (3 divers) - no confirmed sighting of the Seastar. Sites included the Snags and the inlet entrance to the east of Ayer Creek.
7.	11 January 2004	Independent verification of Seastar specimen by echinoderm taxonomist at the Museum of Victoria.
8.	12 January 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies – update</i>
9.	14 January 2004	Media Release – Northern Pacific Seastar found Near Inverloch
10.	19-21 January 2004	A video survey of seafloor to the south and west of Point Norman - no confirmed sighting of the Seastar.
11.	22 January 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies – Update</i>
12.	30 January 2004	Hourly plots of modelled water currents obtained for Point Norman region
13.	4 February 2004	First community meeting. Outcome – further surveys to determine status of outbreak.
14.	9 February 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies – Update</i>
15.	10-12 February 2004	A trawl survey of the seafloor off Point Norman and in the Inlet- no confirmed sighting of the Seastar.
16.	13 February 2004	Media release – Call for Dive Support
17.	15 February 2004	Seastar identification posters distributed around Inverloch.
18.	28 February 2004	Dive survey (1) coordinated by DSE (20 divers in close to ideal conditions) of a 500 000m ² area of Venus Bay in area 4 –

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

		the western part of the surf beach near Petrel Rock – no confirmed sighting of the Seastar.
19.	1 March 2004	Media release - Community Dives in with Support
20.	2 March	<i>Consultative Committee for Introduced Marine Pest Emergencies teleconference– Outcome - Victoria to prepare an emergency investigation proposal, Members to consider national control plan.</i>
21.	3 March 2004	Dive survey (2) coordinated by DSE (10 divers in close to ideal conditions) of a 250 000 m ² area of Venus Bay in area 3 – directly to the west of the inlet mouth and also the region directly off the surf beach - no confirmed sighting of the Seastar.
22.	4 March 2004	Beach survey of intertidal area west of Eagles Nest at Inverloch.– no confirmed Seastars.*
23.	6 March 2004	Second community meeting. Outcome - Continue search for source population.
24.	13 March 2004	Dive survey (3) coordinated by DSE (10 divers in average conditions) of a 250 000 m ² area of Venus Bay in area 3 – directly to the west of the inlet mouth, a few locations further offshore and Inlet waters near Maher’s Landing. A single survey of 3 divers inside the Inlet entrance provided 5 confirmed specimens . The focus of the dives changed from searching - to collection of seastars from the Inlet and determining population distribution.
25.	13 March 2004	Beach survey of intertidal area west of Point Norman to Cape Patterson at low tide – no confirmed Seastars.*
26.	16 March 2004	Media release – Volunteers and Locals Continue to do their bit
27.	16 March 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies conference – Full brief of background information and response details.</i>
28.	20 March 2004	Collection and distribution determination dive (1) coordinated by DSE (22 divers in average conditions) of the Inlet entrance in area 1 and locations in the upper reaches including the snags - 64 confirmed specimens from area 1.
29.	22 March 2004	Media release – Possible source population of Seastar found
30.	27 March 2004	Collection and distribution determination dive (2) coordinated by DSE (40 divers in close to ideal conditions) of the Inlet entrance in area 1 and locations in the upper reaches including the snags - 39 confirmed specimens from area 1. An assessment of diver effectiveness was attempted using potatoes as ‘dummy seastars’ – the exercise was abandoned after current removed the potatoes from the site. No potatoes were later found at Point Norman.
31.	29 March 2004	Media release – Seastar Clean Up Continues
32.	30 March / 5 April 2004	A video survey of the deeper waters of Venus Bay and the deeper section of the Inlet - no confirmed sighting of the Seastar.

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

33.	4 April 2004	Collection and distribution determination dive (3) coordinated by DSE (24 divers in average conditions) of the Inlet entrance in area 1 and locations in the upper reaches including the snags – 17 confirmed specimens from area 1.
34.	5 April 2004	Media Release - Seastar Search Efforts Given Scientific Boost
35.	5 April 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies - Update</i>
36.	17 April 2004	Collection and distribution determination dive (4) coordinated by DSE (19 divers in average conditions) of the Inlet entrance in area 1 - 20 confirmed specimens.
37.	21 April 2004	Collection and distribution determination dive (5) (5 divers in average conditions) of the Inlet entrance in area 1 - 4 confirmed specimens.
38.	21 April 2004	Media release – Seastar Eradication Effort hits top gear
39.	21 April 2004	Specimens screened by allozyme analysis and considered to be from the Port Phillip Bay source population (compared with the source from Derwent River estuary and international sources).
40.	24 April 2004	Collection and distribution determination dive (6) planned, but cancelled on day due to the weather.
41.	28 April 2004	Collection and distribution determination dive (7) (3 divers in average conditions) of the Inlet entrance in area 1 - 3 confirmed specimens.
42.	6 May 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies - Update</i>
43.	6 May 2004	Collection and distribution determination dive (8) (8 divers in average conditions) of the Inlet entrance in area 1 - 16 confirmed specimens.
44.	8 May 2004	Collection and distribution determination dive (9) coordinated by DSE (20 divers in average conditions) of the Inlet entrance in area 1 - 20 confirmed specimens. All Seastars found were scattered individually in area 1.
45.	9 May 2004	Collection and distribution determination dive (10) (4 divers in average conditions) of the Inlet entrance in area 1 - 3 confirmed specimens. All Seastars found were scattered individually in area 1.
46.	9 May 2004	Crushed mussels in hessian sacks placed in area 1 to attract Seastars.
47.	15 May 2004	Collection and distribution determination dive (11) coordinated by DSE (20 divers in average conditions) of the Inlet entrance in area 1 - 7 confirmed specimens. All Seastars found were scattered individually in area 1.
48.	16 May 2004	Collection and distribution determination dive (12) (3 divers in poor conditions) of the Inlet entrance in area 1 - 2 confirmed specimens. All Seastars found were scattered individually in area 1.
49.	23 May 2004	Collection and distribution determination dive (13) (50 divers in good conditions) of the Inlet entrance in area 1 - 21

Emergency Response to the Northern Pacific Seastar outbreak at Inverloch

		confirmed specimens. All Seastars found were scattered individually in area 1.
50.	25 May 2004	<i>Consultative Committee for Introduced Marine Pest Emergencies - Update</i>
51.	26 May 2004	Dog food baits placed in area 1 to attract Seastars.
52.	26 May 2004	Media release – Seastar eradication effort gets due recognition
53.	6 June 2004	Collection and distribution determination dive (14) coordinated by DSE (27 divers in average conditions) of the Inlet entrance in area 1 - 8 confirmed specimens. All Seastars found were scattered individually in area 1. Stand down arrangements and preparations for resurveying Inlet in February were discussed.
54.	7 June 2004	Media release – Volunteers sea stars
55.	6 August 2004	Media release – Inverloch Seminar
56.	22 August 2004	Collection and distribution determination dive (15) (7 divers in average conditions) of the Inlet entrance in area 1 - no confirmed specimens. Divers also were interviewed by the Korean Broadcasting service for a documentary on the links with Australia in management of marine pest.
57.	29 August 2004	Community Seminar at Inverloch to provide summary of response, stand down arrangements and information about marine environment.
58.	28 October 2004	Sampling for Seastar larvae in Anderson Inlet – awaiting results
59.	3 December 2004	Volunteer and Community Debrief
60.	4 December 2004	Collection and distribution determination dive (16) (4 divers in good conditions) of the Inlet entrance in area 1 - 2 confirmed specimens.
61.	13 December 2004	Government Debrief
62.	21/ 31 January 2005	Other Debriefings
63.	28 February 2005	Assessment dive (45 divers in good conditions) coordinated by DSE of the Inlet entrance in area 1 - 1 confirmed adult specimen.

* Beach surveys included in this table only include specifically organised events. Local residents continued to survey the beaches each day.